THE PHYTOLOGIST.

No. XXVII. | AUGUST, MDCCCXLIII. | PRICE 1s.

ART. CLVI.—*Researches in Embryogeny.* By W. WILSON, Esq.

(Continued from p. 628).

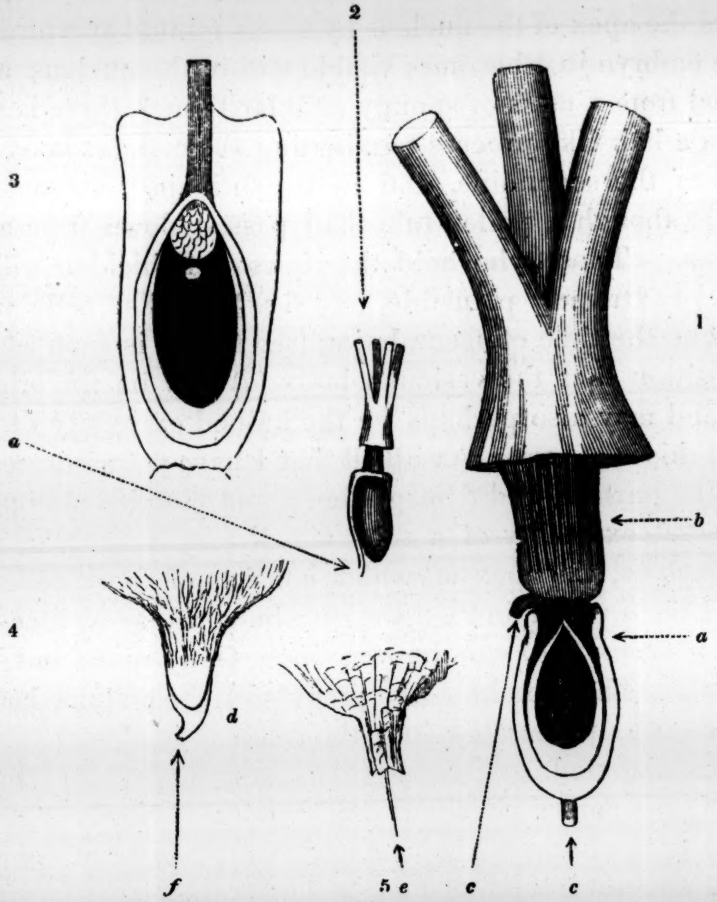

Fig. 1. Section of ovulum (*a*) of *Statice Armeria*, with the secundine adhering to the cellular body (*b*) proceeding from the base of the styles. The position of the funiculus, *c*, *c*, is also represented in this figure—portions of three of the styles are seen. The carpellary integument is dissected away to show the ovulum and its suspensor prior to fecundation.

Fig. 2. Another view of the ovulum with its funiculus (*a*) and suspensor, previous to fecundation, less magnified.

Fig. 3. Section of germen soon after fecundation, showing the rudimentary embryo.

Fig. 4. Apex of the cellular body, or suspensor, showing the vesicular portion (*d*) and tubular extremity (*f*) at the period of fecundation.

Fig. 5. Cellular body as seen after the time of fecundation, with the hair-like projection (*e*), magnified about 300 times.

IN Lindley's Natural System, edition 2, there is an interesting account of the ovulum of Plumbagineæ, which however is not quite accurate. Instead of the ovulum in Statice Armeria having its foramen covered by the strap-like funiculus previous to fecundation, and the funiculus subsequently pushed aside by the protrusion of a cellular body proceeding from the base of the styles, I find that previous to the expansion of the flower this cellular body is intimately united to the apex of the secundine of the ovulum, and remains thus attached until fecundation is effected, (see fig. 1 and 2): consequently the funiculus, in every stage, occupies a lateral position. At the exact period of fecundation there is reason to believe that the cellular body penetrates the apex of the nucleus by a very minute aperture; because when the embryo just becomes visible within the nucleus at its apex (suspended from a mass of spongy cellular tissue), there is sometimes to be seen a hair-like process terminating the cellular body (now disunited from the secundine, and by its shrinking, at some distance above it) as though a pollen-tube had passed down from above into the nucleus. Those who hold the views of Schleiden will find the appearances extremely plausible, (see fig. 5). The cellular body, as it appears at the time of fecundation (see fig. 4) is such as to induce the supposition that the vesicular body (*d*) may be the origin of the embryo, and may also perhaps be the bulbed extremity of a pollen-tube; but this is at variance with all that I have yet witnessed in other tribes. The part marked *f* (magnified about 300 times) appears to be the truncated extremity of a tube which may have been continued into the nucleus, the apex of which consists of loose cellular tissue, and may have a very minute aperture; but this, as well as the aperture of the secundine, can be very imperfectly made out by actual observation. That the hair-like process of the cellular body (fig. 5) has in some way penetrated into the nucleus is almost certain, and need not be disputed.

At fig. 3, the embryo is shown as it appears shortly after fecundation. The upper body within the nucleus is a mass of spongy cellular tissue, and the roundish body below is the embryo, with its two wide-spreading lobes (not seen in the figure from its position), which form the cotyledons when the embryo has filled up the cavity of the nucleus. Previous to fecundation the nucleus has no trace whatever either of the embryo or of the cellular tissue from which it is suspended. It constitutes the albumen of the perfect seed, and is much thickened towards the lower part.

Plants belonging to the order Plumbagineæ are remarkable for having five styles or pollen-ducts and only one ovulum. Assuming that the embryo is formed by the extremity of a pollen-tube, what is to prevent the occasional presence of two or more embryos in the ovulum?

Such of the readers of 'The Phytologist' as have not seen an article in the 'Microscopic Journal' (ii. 138), by Herbert Giraud, M.D., 'On the origin and development of the embryo in Tropæolum majus,' will do well to consult it. W. Wilson.

Warrington, July 7, 1843.

[We give below Dr. Giraud's article from the 'Proceedings of the Linnean Society,' where it originally appeared.—*Ed.*]

"After referring to the researches of MM. Schleiden, Wydler, Mirbel and Spach, and A. St. Hilaire, on this important point, Dr. Giraud states that he was induced to select Tropæolum as the subject of his own observations, on account of its solitary ovula, and their comparatively large size, which render the individuals of this family, as well as the allied Geraniaceæ, peculiarly fitted for the purpose. He arranges his observations under seven general heads, corresponding with as many progressive periods in the growth of the female organs, and extending from the completion of the anatropous development of the ovule to the perfect formation of the embryo; or from the commencement of the expansion of the bud to the complete formation of the fruit. The results are collected from a great number of dissections.

"In the *first* period, or just before the expansion of the bud, a longitudinal section of the carpellum from its dorsum towards the axis of the pistillum, dividing the ovule, shows the latter to have completed its anatropous development. A portion of rather firm and dense cellular tissue, enclosing a bundle of vessels, descends from the placenta and in apposition with it to form the raphe, and terminates in the base of the ovule. The nucleus has only one integument, at the apex of which is the exostome or micropyle, opening close by and to the outside of the point of attachment; and the conducting tissue of the style may be traced into the carpellary cavity as far as the exostome.

"In the *second* period, during which the expansion of the bud and the dehiscence of the anthers commence, and therefore, before impregnation, a small elliptical cavity makes its appearance near the apex of the nucleus, having a delicate lining membrane formed by the walls of the surrounding cells: this cavity is the embryo-sac, and a minute canal may be traced leading from it to the exostome. The apex of the embryo-sac encloses at this period a quantity of organizable mucilage, containing many minute bodies, having the appearance and character of cytoblasts.

"In the *third* period, the apex of the nucleus and of its integument, becomes slightly inclined towards the placenta. The embryo-sac is much enlarged and lengthened; its mucilage has disappeared and given place to an elongated diaphanous utricle (*utricule primordiale*, Mirbel; *vésicule embryonnaire*, Meyen; *extrémité antérieure du boyau pollinique*, Schleiden) containing a quantity of globular matter or cytoblasts. This primary utricle is developed wholly within the embryo-sac, from which it is obviously distinct.

"The *fourth* period occurs after impregnation. The pollen tubes do not extend into the carpellary cavity; but the fovilla, with its granules, is found abundantly in the passage leading from the style to the exostome. With the increased development of the embryo-sac, the primary utricle elongates and becomes distinctly cellular, by the development of minute cells in its interior, while at the extremity next the base of the nucleus it is terminated by a spherical mass consisting of globular cells. The primary utricle at this period assumes the character of the suspensor (Mirbel), and its spherical extremity constitutes the first trace of the embryo.

"In the *fifth* period, the apex of the nucleus and of its integument becomes more inclined towards the placenta; the spherical extremity of the suspensor enlarges, and it becomes more evident that it constitutes the rudimental embryo. In the mean time the suspensor has become lengthened by an increase in the number of its cells; and its upper extremity is found to be protruded through the apex of the embryo-sac, the apex of the nucleus and the micropyle. From this extremity there is a considerable development of cells, many of which hang loosely in the passage leading to the conducting tissue of the style, while the rest unite in forming a process which passes down the outer side of the ovulum within the carpellary cavity. This process is composed of from nine to twelve rows of cells, and its extremity resembles in appearance and in the anatomical condition of its cells the spongiole of a root. By a slight traction of this cellular process, the suspensor with the embryo may be withdrawn from the embryo-sac through the exostome, thus proving the continuity of the process with the suspensor, and through it with the embryo itself.

"During the *sixth* period the suspensor becomes more attenuated; and the cellular process has reached the base of the ovulum, the cells of its extremity abounding with cytoblasts, which prove that it is still progressing in development. The embryo also increases in size, and two lateral processes are observed, which evidently form the first traces of the cotyledons.

"In the *seventh* period, all distinction between the nucleus and its integument ceases, and they form a single envelope enclosing the embryo-sac; the cellular process has become so much developed, that its extremity has passed round the base of the ovulum and is directed towards the placenta; and the lateral processes of the embryo have become distinct fleshy cotyledons, enclosing both the radicle and plumule in corresponding depressions of their opposed surfaces. The subsequent changes consist chiefly in the great development of the cotyledons, which ultimately occupy the entire cavity of the nucleus, filling the space usually taken up by albumen.

"From these observations Dr. Giraud deduces the following inferences.

"The formation of the embryo-sac, and the development of cytoblasts within it, having been shown to take place at a period prior to impregnation, and even the primary utricle itself making its appearance before the emission of the pollen from the anther, and before the expansion of the stigma, the origin of the primary utricle cannot be referred to the influence of impregnation, nor can it have been derived from the pollen tube pressing before it a fold of the embryo-sac.

"The primary utricle at its first formation being quite distinct from the embryo-sac, even at its apex (although brought into contact with it at a subsequent period, and ultimately penetrating it), cannot result from a depression or involution of the embryo-sac, as is maintained by M. Brongniart.

"The pollen tubes (which after impregnation may be traced in the conducting tissue of the style) never reaching the micropyle, but pollen granules being found in abundance in the channel leading to it, and being doubtless brought into contact with the outer surface of the embryo-sac through the exostome; and the first trace of the embryo appearing at this time in the formation of the spherical body at the inferior extremity of the primary utricle—Dr. Giraud is led to conclude that the origin of this simple spherical body results from a peculiar process of nutrition, determined by the material or dynamic influence of the fovilla, conveyed through the medium of the primary utricle or suspensor.

"The paper was accompanied by a series of drawings representing the ovulum of Tropæolum in the several stages of development described."—'*Proceedings of the Linnean Society,' February* 1, 1842: p. 123.

Art. CLVII. — *List of the Cryptogamic Plants of Oxfordshire.**

By Ph. B. Ayres, Esq., M.D.

Thame, May 18, 1843.

Sir,

I inclose you a list of the Cryptogamic Flora of Oxfordshire, as far as it has been at present examined, compiled from a manuscript list of Mr. Baxter's, with such additions as I have been able to make. It will be seen that very little has been done towards forming a complete list for the county, as most of the localities given are in the immediate neighbourhood of Oxford, and the country towards the northern extremity has had little attention paid to it. I have no doubt that that part of the county would repay the investigation, since in my own neighbourhood I have found two species, which Mr. Berkeley has determined to be new to the British Flora.

I am, Sir,
Your obedient Servant,
Ph. B. Ayres, M.D.

To the Editor of 'The Phytologist.'

Phascum subulatum. Shotover hill, Bagley wood, *Baxter;* Thame and Stokenchurch range, *Dr. Ayres.*

——— *muticum.* On a bank at the N.E. corner of Shotover hill, *Baxter.*

——— *cuspidatum.* Banks, &c. rather common, Thame, *Dr. Ayres.*

Sphagnum obtusifolium. Bogs, common, *Baxter.*

——— *squarrosum.* Bogs, Shotover hill.

——— *acutifolium.* Shotover hill, Bagley wood, *Baxter;* Bates' Leys, Thame, *Dr. Ayres.*

Gymnostomum ovatum. Walls &c., common.

——— *truncatulum.* Banks &c., common.

——— ——— *β. intermedium,* Hook. Banks, Bagley wood, rare, *Baxter.*

——— *pyriforme.* Ditch-banks, Thame, abundant, *Dr. Ayres.*

Tetraphis pellucida. Shotover plantations, *Sibthorp.*

Splachnum ampullaceum. On cow-dung, Shotover hill, very rare, *Baxter.*

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* The list, as received from Dr. Ayres, contained also localities of the Ferns; but these, in accordance with our notice (Phytol. 549), and in order that repetition may be avoided, will be given in Mr. Newman's list of the Ferns of Oxfordshire.—*Ed.*

Encalypta vulgaris. On an old wall at Headington quarry, and on the wall of the sunk fence, Shotover plantations, *Baxter.*

Weissia lanceolata. Walls and banks, Shotover hill, South Hinkley, *Baxt.*

——— *curvirostra.* Shotover hill, *Sibthorp.*

——— *controversa.* Banks, Shotover hill, 1833, *Dr. Ayres.*

Grimmia apocarpa. Walls near Oxford, common, *Baxter;* rare at Thame, *Dr. Ayres.*

——— *pulvinata.* Abundant on walls and tiles.

Didymodon purpureus. Banks, walls &c., common; Thame, *Dr. Ayres.*

Trichostomum canescens. Heaths, Shotover hill, *Sibthorp.*

Dicranum bryoides. Shotover hill, &c., *Baxter.*

——— *adiantoides.* Moist shady places, *Baxter.*

——— *taxifolium.* Moist shady places, common.

——— *glaucum.* Ensham heath, *Sibthorp;* Bagley wood, *Baxter;* very rare.

——— *cerviculatum.* Shotover hill, *Baxter.*

——— *flexuosum.* Shotover hill, *Baxter;* Stokenchurch woods, *Dr. Ayres.*

——— *undulatum.* Shotover hill, *Baxter.*

——— *Scoparium.* Shotover hill, Bagley wood, *Baxter;* Stokenchurch woods, *Dr. Ayres.*

——— *heteromallum.* Banks, Shotover hill, Stokenchurch woods, &c.

Tortula rigida. Walls and banks, very common, *Baxter.*

——— *convoluta.* Moist banks, *Baxter.*

——— *muralis.* Walls &c., exceedingly common.

——— *ruralis.* Walls, roofs &c., very common.

——— ——— *β. lævipila,* Hook. Thame, *Dr. Ayres.*

Tortula subulata. Shotover hill &c.; Stokenchurch woods, *Dr. Ayres.*

——— *unguiculata.* Very common.

——— *fallax.* Walls, banks, &c., *Baxter.*

Cinclidotus fontinaloides. In the Isis, *Sibthorp.*

Polytrichum undulatum. Shotover hill, *Baxter;* Stokenchurch woods, &c., *Dr. Ayres.*

——— *piliferum.* Shotover hill, *Baxter.*

——— *juniperinum.* Shotover hill, *Baxter.*

——— *commune.* Shotover hill, Bagley wood, &c., common.

——— *aloides.* Shotover hill, Bagley wood, *Baxter.*

——— *nanum.* Shotover hill, Bagley wood, *Baxter:* Stokenchurch woods, *Dr. Ayres.*

Funaria hygrometrica. Banks, walls &c., common.

Orthotrichum anomalum. Trees, rocks, walls, Oxford, *Baxter;* Thame, *Dr. Ayres.*

——— *affine.* Trees near Oxford, *Baxter;* Thame, *Dr. Ayres.*

——— *striatum.* Trees, *Baxter.*

——— *Lyellii.* Bagley wood, *Baxter;* Stokenchurch woods, *Dr. Ayres.*

——— *crispum.* Bagley wood, *Baxter;* Stokenchurch woods, *Dr. Ayres.*

——— *pulchellum.* Bagley wood, *Baxter;* Penleigh Holms, *Dr. Ayres;* very rare.

Bryum palustre. Bogs, Bullington green, *Baxter.*

——— *carneum.* Ditch-banks, Bullington green, *Baxter.*

——— *argenteum.* Very common.

——— *roseum.* Shotover hill, *Baxter.*

——— *capillare.* Banks, heaths &c., *Baxter.*

——— *cæspititium.* Walls &c., very common.

——— *turbinatum.* Wet sandy places near the N.E. corner of Shotover hill, *Baxter;* bog near Thame, *Dr. Ayres.*

Bryum nutans. Shotover hill, *Baxter;* Thame, abundant, *Dr. Ayres.*

——— *punctatum.* Shotover plantations, rare, *Sibthorp.*

——— *ligulatum.* Moist places, common.

——— *rostratum.* Shotover plantations, very rare, *Baxter.*

——— *hornum.* Shotover hill, Bagley wood, *Baxter.*

——— *cuspidatum.* Shotover plantations, *Baxter.*

Bartramia pomiformis. Heaths, rare, *Baxter.*

——— *fontana.* Bogs, Shotover hill, Bullington green, *Baxter.*

Pterogonium Smithii. Stokenchurch woods, *J. Oglander, Esq.;* I have not met with it, *Ph. B. Ayres.*

Neckera pumila. Bagley wood, *Baxter.*

——— *crispa.* Stokenchurch woods, *Baxter;* I have found it only on the right side of the road as you ascend Stokenchurch hill, on stumps of trees and on the ground, but never in fruit, *Ph. B. Ayres.*

Anomodon curtipendulum. Bagley wood, rare, *Baxter.*

——— *viticulosum.* On stumps of trees and on the ground, common, but rare in fruit.

Daltonia heteromalla. Shotover plantations, Bagley wood, *Baxter;* neighbourhood of Thame, but sparingly, *Dr. Ayres.*

Leucodon sciuroides. Trunks of trees, *Baxter.*

Fontinalis antipyretica. Cherwell and Isis, *Baxter.*

Hypnum trichomanoides. Shotover hill and plantations, Bagley wood, *Baxter.*

——— *complanatum.* Shotover hill, Bagley wood, *Baxter;* Stokenchurch woods, *Dr. Ayres.*

——— *riparium.* Wood and stones, in water, *Baxter.*

——— *denticulatum.* Bagley wood, very rare, *Baxter.*

Hypnum serpens. On trees, pales, &c., common.

——— *murale.* Walls of Botanic Garden, Oxford, *Baxter.*

——— *purum.* In grassy places, common.

——— *Schreberi.* Stokenchurch woods, *Dr. Ayres.*

——— *plumosum.* Shotover hill, rare, *Sibthorp.*

——— *sericeum.* On trees &c., very common.

——— *lutescens.* On banks, trees, &c., *Baxter.*

——— *alopecurum.* Shaded banks, *Baxter;* Kingston, *Dr. Ayres.*

——— *dendroides.* Shotover hill, near Stow wood, *Baxter.*

——— *curvatum.* Shotover plantations, Bagley wood, *Baxter;* Stokenchurch woods, *Dr. Ayres.*

——— *splendens.* Shotover hill and plantations, Bagley wood, *Baxter;* Stokenchurch woods, common, *Dr. Ayres.*

——— *proliferum.* Shotover hill and plantations, Bagley wood, *Baxter;* Stokenchurch woods, abundant, *Dr. Ayres.*

——— *prælongum.* On decaying trees, &c., *Baxter.*

——— *abietinum.* Headington quarry, Shotover hill, very rare, *Baxter.*

——— *piliferum.* Shotover hill, rare, *Baxter.*

——— *rutabulum.* Very common.

——— *velutinum.* Very common.

——— *ruscifolium.* On stones &c. in water, near Oxford, *Baxter;* Thame, *Dr. Ayres.*

——— *striatum.* Bagley wood, *Baxter;* Stokenchurch woods, *Dr. Ayres.*

——— *cuspidatum.* Moist places, common.

——— *cordifolium.* Bogs, Shotover hill, Bagley wood, *Baxter;* in a ditch in Old Town meadows, Thame, *Dr. Ayres.*

Hypnum stellatum. Bogs under Bullington green, *Baxter.*

—— *loreum.* Shotover hill, *Baxter;* Stokenchurch woods, abundant, *Dr. Ayres.*

—— *triquetrum.* Heaths &c., common.

—— *brevirostre.* Bagley wood, *Baxter.*

—— *squarrosum.* Shotover hill, Bagley wood, *Baxter;* Stokenchurch hill, *Dr. Ayres.*

Hypnum filicinum. Bogs, *Baxter.*

—— *fluitans.* Shotover hill, *Baxter.*

—— *aduncum.* Bogs, Shotover hill, Bullington green, *Baxter.*

—— *cupressiforme.* Woods &c., common; Stokenchurch woods, *Dr. Ayres.*

—— —— γ. *tenue,* E. B. Woods &c., *Baxter.*

—— *molluscum.* Woods &c.; Stokenchurch woods, *Dr. Ayres.*

(To be continued.)

ART. CLVIII. — *Notice of 'A Visit to the Australian Colonies.* By JAMES BACKHOUSE.' London: Hamilton, Adams & Co. 1843.

(Continued from p. 608).

WELLINGTON Valley appears to be the most inland point reached by our observant traveller. At the end of September 1835 he set out on his return to Sydney, which place he reached on the 30th of the following month. But few botanical observations appear to have been made by the way: we extract the following.

> "In the lower altitudes of the mountains the advance of spring was more striking. Telopea speciosissima, forming low bushes, with heads of flowers as large as small pæonies, was in full blossom. The Blue-Mountain parrot, partly blue, and with a breast of crimson, as brilliant as the flowers, was drinking nectar out of the blossoms of this splendid shrub; and a brown honey-eater was darting its tongue, like a slender pencil of hair, into the elegant pink flowers of Grevillea linearis. Gompholobium grandiflorum, a large, yellow, pea-flowered shrub, of great beauty, and several species of Platylobium, Daviesia, Boronia and Eriostemon, enlivened the solitude and beguiled the walk, of thirty-one miles, through this dreary forest, which we accomplished in ten hours."—p. 336.

After a visit of some months to Van Diemen's Land, J. Backhouse returned to Sydney on the 22nd of February, 1836; and in company with Mr. MacLeay and other gentlemen, visited a collection of vines, amounting to three hundred varieties, among which, under French names, are most of those cultivated for the table in England. He speaks of the Sydney botanic garden as a fine institution, and furnished with a good collection of native and foreign plants. Remaining but a short time at Sydney, he sailed in the Isabella for Moreton Bay, between six and seven degrees further north, that is, in latitude about 27° 20' S. On the 29th of March, while walking a few miles down the Brisbane river towards a brook called Breakfast Creek, the waters of which are generally brackish at high tide, several remarkable plants were observed.

> "On the margins of the brook, Acrostichum fraxinifolium, a large ash-leaved fern, was growing, along with Crinum pedunculatum, a great bulbous-rooted plant, with white, tubular, lily-like flowers. Hellenia cærulea, a reedy-looking plant, with broad leaves and blue berries, and a species of Phytolacca, with pretty pink blossoms, were among the brush-wood. By the sides of fresh-water ditches there were a Jussiæa, resembling an evening primrose, with small yellow blossoms, and a blue-flowered plant, in figure like a Pentstemon. On the grassy slope of the hills, near the river, Hibiscus Fraseri, with yellow blossoms, like those of the hollyhock, but having a deep purple eye, was in flower."—p. 359.

And again, a forest, called Three-mile Scrub, visited on the 2nd of April, seems to have been found replete with interest.

> "Some of the trees far exceed 100 feet in height, a few may be 150. Among the lofty ones may be enumerated some Eucalypti, called iron-bark, forest-mahogany, &c. and three species of fig, with leaves resembling those of laurel or Magnolia. One of these, Ficus macrophylla, was forty feet in circumference at the greatest height that I could reach: its roots formed wall-like abutments, extending from the tree, over an area thirty feet across. These fig-trees are very remarkable in their growth: they often spring from seeds, deposited by birds in cavities of other trees, at elevations of, perhaps, fifty feet or more. From these situations they send roots down to the ground, which, in their course, adhere to the tree; these again emit transverse or diagonal roots, that fix themselves to others, in their course downward. Those that reach the ground thicken rapidly, still spreading themselves upon the face of the foster tree, which, at length, is completely encased. These gigantic parasites rear their towering heads above all the other trees of the forest, sending out vast limbs, and spreading their own roots in the earth, from which also they sometimes grow, without the aid of other trees to sustain them.
>
> "The trunks and limbs of these, and other trees, support several species of fern, and some epiphytes of the Orchis tribe, with fleshy leaves, and singular stems and flowers. Numerous climbing plants, with stems varying in thickness, from that of packthread to that of a man's body, ascend into their tops, and send down their branches in graceful festoons. Among the slenderer climbers were two species of passion-flower and one of jasmine. The most gigantic climber, which might properly be called a climbing tree, belonged to a race of plants called Apocyneæ: it had rugged bark, and sometimes formed a few serpent-like wreaths upon the ground before ascending, and spreading itself among the tops of the other trees. There were also three species of Cissus; one of them with simple, and the other two with trifoliate leaves: these are kinds of vine, bearing grapes, about equal in size to English sloes, but sweeter. The fruit of the figs is rather dry, but it is eaten by the native blacks and by numerous birds, The Moreton Bay chesnut, Castanospermum australe, is a fine tree, with a profusion of flame-coloured blossom, and with leaves like those of the European walnut. Some of its pods are ten inches long and eight round; they contain several seeds, in size and colour resembling horse-chesnuts, but, in flavour, between a Spanish chesnut and a fresh-ripened bean, with a slight degree of bitterness. The blacks roast them, and soak

them in water, to prepare them for food. Acrostichum grande, one of the ferns that grow on the trees, is as large as a full-grown Scotch cabbage, and is remarkably beautiful. Caladium glycirrhizon, a plant allied to the Arum, and one of the race called Tara, the roots of which afford food to the islanders of the Pacific, abounds in these woods. The root is beaten and roasted by the aborigines, till it is deprived of its acrimony; it is then eaten, and is said to be pleasant to the taste. In the margins of the woods, and on the banks of the rivers, the climbers are also numerous, and very beautiful. Among them are Tecoma jasminoides, a large, white trumpet-flower, with a rosy pink tube, and Ipomœa pendula, before noticed as bearing elegant, pink, convolvulus-like blossoms. In the grass of the open ground is a remarkable climbing nettle, and in the forests, the giant nettle, Urtica gigas, forms a large tree. Many of the hills in this neighbourhood are dry, and covered with quartzose gravel. On these, the trees are chiefly of the genera Eucalyptus, Tristania, Casuarina and Acacia. In the basaltic soils Altingia Cunninghamii, the Moreton Bay pine, is interspersed; and in some places, further into the interior, it forms large woods."—p. 361.

On the 4th of April our traveller visited Eagle Farm, a settlement six miles from Brisbane Town towards the mouth of the river of the same name. On the way he noticed a beautiful Pavonia, with a rosy purple blossom, shaded deeply towards the centre; also a splendid Loranthus, with foliage like that of a lemon, and clusters of crimson tubular flowers tipped with yellow. The beautiful blue Ipomœa hederacea was also in blossom.

"In a wood, on the margin of the river, a few miles above Brisbane Town, I met with a species of lime, Citrus, having small diversified leaves, and fruit the size of a walnut; it formed a tree fifteen feet high. Flindersia australis, Oxleya zanthoxyla, and Cedrella Toona? trees of the same tribe as the mahogany, attain to a large size in these forests. Oxleya zanthoxyla is the yellow wood of Moreton Bay: one I measured, was forty feet round at about five feet up: it was supposed to be one hundred feet high. The Cedrella is the cedar of N. S. Wales; the wood of which resembles mahogany, but is not so heavy. The silk oak, Grevillea robusta, also forms a large tree: its foliage is divided, like that of some Umbelliferous plants; its flowers are somewhat like branched combs, of crooked yellow wire, shaded into orange, and are very handsome. Hoya Brownii, and Jasminum gracile? were abundant on the bank of the river, along with Tecoma jasminoides, and many other curious and beautiful climbing shrubs. Eleven epiphytes, of the Orchis tribe, were growing on the trunks of the trees in the forest. Most of these were of the genera Dendrobium, Cymbidium and Gunnia. Some bananas, which had been washed from a place in the limestone country above, where sheep, for the provision of the settlement, are kept, had established themselves on the borders of a creek. Pumpkins were growing among the brushwood, in great luxuriance. The last were observed, with evident pleasure, by my boat's crew of prisoners, who anticipated making a meal of them, at a future day. They are much used as a table vegetable, in New South Wales, and are certainly to be valued as such, in this climate; they keep well, and are a good substitute for potatoes, or for turnips, by land or by sea."—p. 364.

The forest about the Pilot's station, situated at the north point of Stradbroke Island, consists of Eucalyptus, Melaleuca and Banksia, mixed with the cypress pine, Callitris arenosa; and the sand on the shore was bound together by maritime grasses, the large yellow-flowered Hibbertia volubilis, and Ipomœa maritima, with its large, pink, convolvulus-like flowers, and curious two-lobed leaves. On the muddy land within the reach of high tides, were a species of mangrove and a Bruguiera.

"The mangrove resembles a thick-leaved laurel, and has roots from its stem above ground, like the stays of the mast of a ship: its fruit is about an inch in diameter, and it vegetates as it hangs on the bush, and sends out a green radicle, about a foot long, and swollen toward the pointed base; this, bearing the germ on its top, drops from the fruit, and either sticks in the mud and vegetates, or floats in the sea, till landed on some congenial spot, or till it perishes. The Bruguiera forms a fine bush, eight or ten feet high, and has the bell-shaped cup to its evanescent petals in substance resembling red morocco leather, and cut into ten narrow segments. Its mode of propagation is similar to the former, but its radicle is shorter, and not swollen towards the base. These gay, red-leather-like flowers, and long, green, spindle-like radicles, were washed up abundantly on the shore, and till I saw them growing, they puzzled me not a little."—p. 375.

On Moreton Island the same plants occurred, together with a Scævola, with brilliant blue flowers and black berries. In the sandy places more inland, "Pandanus pedunculatus, a species of screw pine, forms a singular tree, fifteen feet high. Its leaves resemble those of the pine-apple; its fruit is as large as a child's head, yellow, and composed of clustered oblong nuts, fleshy at the base, which separate in attached groups when ripe. The fleshy part is eaten by the blacks; but it has an unpleasant smell, and though sweetish, is rather acrid. The trunk is supported securely by roots, that descend from various parts of it, into the sand, and are as thick and straight as broom-sticks; they look rather like the stays of a ship." Some steep sand hills "were overgrown by Myrtus tenuifolia, a myrtle of low stature, with narrow leaves, and sweet, aromatic, white berries, spotted with purple. These are the most agreeable native fruit I have tasted in Australia; they are produced so abundantly as to afford an important article of food to the aborigines." Near the east coast was a yellow Crotalaria, and three species of ferns, Lygodium microphyllum, Pteris esculenta and Blechnum cartilagineum.

At Newcastle, where he appears in the first instance to have been driven by stress of weather, on his return to Sydney from Moreton Bay, our traveller observed that many open places in the forests abounded with gigantic lily, from ten to twenty feet in height. The stems of this plant, at a foot and a half high, are thicker than a man's arm; they are roasted and eaten by the natives. The roots of this lily are also roasted, made into a sort of cake, and eaten cold by the natives: "they likewise roast and pound the seeds of Zamia spiralis, and then place the mass for two or three weeks in water, to take out the bitter principle, after which it is eaten." At Maitland, forty miles from Newcastle, by the Hunter river, some of the trees were clothed with shaggy lichens, and supported the golden mistletoe: and "the elk's-horn fern, Acrostichum alcicorne, which in Port Jackson generally grows on decomposing sandstone rocks, forms here protuberant girdles round the trunks of trees, among the branches of which Ipomœa pendula and Marsdenia fragrans are striking climbers." Still further up the Hunter River, Kennedia ovata, a species of Tecoma, Sicyos australis, Nicotiana undulata, a species of Cannabis, and several other striking plants were growing on the banks. In the adjacent woods, called cedar-brushes, from the occurrence of Melia Azederach or the white cedar, Eugenia myrtifolia and Ficus Muntia were observed. "The former resembles a large broad-leaved myrtle, and attains to twenty feet in height; its fruit, which is now ripe, is about the size of a cherry, but oblong and purple, with a mixture of sweet and acid. Ficus Muntia is a spreading fig, growing as large as an apple-tree. Where its branches touch the ground, they root, and send up erect shoots, forming a succession of trees. The insipid fruit, which is about the size of a gooseberry, is sometimes produced from the bare trunk and boughs, as well as from the leafy branches, giving the tree a very unusual appearance. These cedar-brushes are also thick with climbers, such as Cissus antarctica, the kangaroo vine, Eupomatia laurinæ, a briary bush allied to the custard-apple, but with inferior fruit, and several Apocyneæ."

Near Raymond's Terrace, where there is a manufactory of earthenware,—

> "Sarcostemma australe, a remarkable leafless shrub, with green, succulent, climbing stems, as thick as a quill, and bearing clusters of white flowers, resembling those of a Hoya, was growing on some rough conglomerate rocks. In the more fertile spots, by the sides of brooks, there was a species of yam, the root of which is eaten by the aborigines, as well as Eugenia trinervis, and another shrub of the myrtle tribe, and Logania floribunda, a privet-like bush, with small, white, fragrant blossoms. The country toward Port Stephens, whither we next proceeded, was decorated with Acacia longifolia, and some others of that genus, with lively yellow flowers, and with Bursaria spinosa, which is fragrant and white, Lambertia formosa, a stiff bush, with beautiful deep crimson flowers, and Dillwynia parvifolia, with pretty orange blossoms."—p. 399.

At Port Stephens, Swainsonia galegifolia, a low suffruticose bush, with white or pink pea-flowers, was remarkably pretty. A little further to the north, on the Wilson river, near Port Macquarrie, the brushes are very magnificent.

"The trees, some of which are of gigantic size, are overrun with climbing, evergreen shrubs, twisted about them in fanciful coils, or wreathed around them like huge serpents, or hanging from them like ropes; their leafy tops being enlivened by gay and fragrant blossoms, and often hanging pendent to the ground, which is covered thickly with beautiful shrubs, ferns, and flowering plants, nourished by the moisture of the rich alluvial soil, and kept from the parching influence of the sun by the exuberant foliage. Mosses, epiphytes of the Orchis tribe, and splendid ferns, as well as various species of fig-tree, support themselves on the trunks and branches of the larger timber, and add greatly to the richness of this kind of forest scenery; among which, gay parrots, cockatoos, and other birds, unlike those of our native land, sport and chatter in harmony with the rest of the surrounding objects, which are strongly calculated to remind an Englishman that he is far from home, even though he may have made this his adopted country."—p. 408.

The neighbourhood of Port Macquarie is rich in the diversity of its vegetation, and the whole of the following passage is so replete with interest, that we feel confident it will prove acceptable to our readers.

"The vegetation here is very striking. On our return to Port Macquarie, we noticed a shrubby, white-flowered Helichrysum, two species of Cassia, Tasmania insipida, Ficus microphylla, ferruginea, and another species, Hibiscus splendens, with blossoms six to nine inches across, Hibiscus heterophyllus, and a shrub with white flowers, allied to Sida, but of a distinct genus, having five red glands at the base of the common filament, also a singular climbing plant belonging to the Aroideæ, adhering to the trees, along with Dischidia nummularia, Polypodium quercifolium and attenuatum, Dendrobium tetragonum, linguiforme, æmulum and calamifolium. In some places the country is undulating and grassy. It is adapted for horned cattle, and suffers less from drought than many other parts of N. S. Wales.

"9th. I took a walk into the wood, on Tacking Point, on the coast south of Port Macquarie. The road from Lake Cottage lay through the Cathi Marsh, part of which was crossed by a long and imperfect bridge of logs. Blandfordia grandiflora decorated some of the open forest, in which several of the gum-trees were supporting a variety of parasitical figs. A grass-tree swamp intervened between the bridge and the shore. On the borders of the swamp, where the ground was sandy, with a small mixture of vegetable matter, several species of Boronia, Epacris, and Euphrasia, were in flower, along with Sowerbæa juncea, a handsome Comesperma, a species of Sprengelia, &c. On the drier sand hills there were Banksia serrata and spinulosa, Platylobium formosum, Rœperia pinifolia, a species of Pultenæa which formed dense patches, and Kennedia ovata and rubicunda, &c. Close upon the coast, Pandanus pedunculatus was of inferior growth to that at Moreton Bay. In a marsh at Tacking Point, chiefly occupied by Melaleuca paludosa, and bordered by a large, silver-flowered, willow-leaved Helichrysum, Todæa africana? had become arborescent, and formed a beautiful tree-fern, with fronds six feet long, on a trunk three feet high. It was growing with an Alsophila, the trunk of which was much slenderer than that of the A. australis of V. D. Land, and with a large Crinum and Caladium glycirrhizon. In the forest, there were many noble trees, similar to those in the neighbouring woods, but here they were intermingled with abundance of Seaforthia elegans, a noble, feather-leaved palm, forty feet in height. The small palm already noticed was also here, and a tall Cyperaceous? plant, growing into the trees, and again bending toward the ground, with a stem as thick as a ratan. One of the parasitical figs had sent a root down from a lofty bough, remote from the trunk, and the root, which must have swung like a rope, had a diagonal direction, and was adhering at its lower extremity to the foster tree! Some Casuarinæ were encircled by masses of Acrostichum alcicorne. This fern retains much moisture in its dead sterile fronds, which form large scales, rising one over another, it generally grows on the upper portion of the trunks of the Casuarinæ, and in stormy weather, they are sometimes thrown down by the weight of water and vegetable matter, thus accumulated about them. Many thus circumstanced were lying in the forest, having a profusion also of Davallia pyxidata growing out of the masses of Acrostichum alcicorne. Other trees, ferns, and flowering plants, were here in great variety.

"Whilst admiring the rich profusion of the vegetable productions, and conversing with some wood-cutters, I insensibly got turned round, and toward evening, on referring to my compass, found myself making rapid progress in a direction opposite to the one I ought to have pursued. What gave to this place the name of Tacking Point I know not, but its name harmonized with my present circumstances; and to use a sea phrase, I 'tacked' without delay, being desirous to escape from the dense forest before sun-set.

"I had become hungry, and looked longingly to the tops of the majestic palms, without the hope of reaching one of them; but at length, I came to one, which, from some accident, had turned its head downward, so that it seemed to be put exactly into my path. I cut it off, stripped away the base of the leaves, to the tender heart, and went along, enjoying my grateful meal, thankful to Him who had brought me and the crooked palm, as by accident, into contact. The supply was so ample, that when I reached my friends at the Lake Cottage, after a toilsome journey through the marsh, in the dark, I had a piece, as thick as my wrist, and a foot and a half long, under my arm, reserved for supper, in case I should have found it impracticable to reach my quarters, and have been under the necessity of remaining under the bushes of the sand hills, on the coast, during the night.

"Among the sedgy plants in the margin of Lake Innis, there is a large species of Eriocaulon. Several other species of this genus occur in N. S. Wales, and one in the west of Scotland,* but its maximum is in America. Plants are subject to a remarkable geographical distribution, which it is very interesting to trace out. The remarkable section of the genus Acrostichum, which includes A. grande and A. alcicorne, has at least one species in India, and another in Western Africa. A. grande grows to a large size, on trees bordering on Lake Innis. One measured, had the upper or barren fronds three feet across, and as much in height. There were two mature barren fronds, that had strong black nerves, and the same number of fertile ones. From the opposite extremities of the appendages of the latter, the measurement was seven feet. Some of these appendages were of ten ribbon-like divisions, many of which were bifid. The central portion might be compared to a jockey's saddle, attached by the pummel.

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* Eriocaulon septangulare, found in the lakes and pools of Skye and some of the neighbouring islands; and in Cunnamara, Ireland.—*Ed.*

From this point to the extreme margin, was a foot and a half, and this portion was two feet across. The fructification formed a half-moon shaped patch, under the exterior portion, that extended one foot from the margin, toward the point of the attachment, and was a foot and a half across. A young, white, barren frond, almost circular, was placed in front of the two older ones, to which it was closely pressed. Behind these, there were several dead, spongy, old fronds, that retained much moisture, and were penetrated by numerous spongy roots, such as were also spread behind them, on the bark of the tree that supported this remarkable fern, the colour of which was bluish green, covered with a whitish powder."—p. 410.

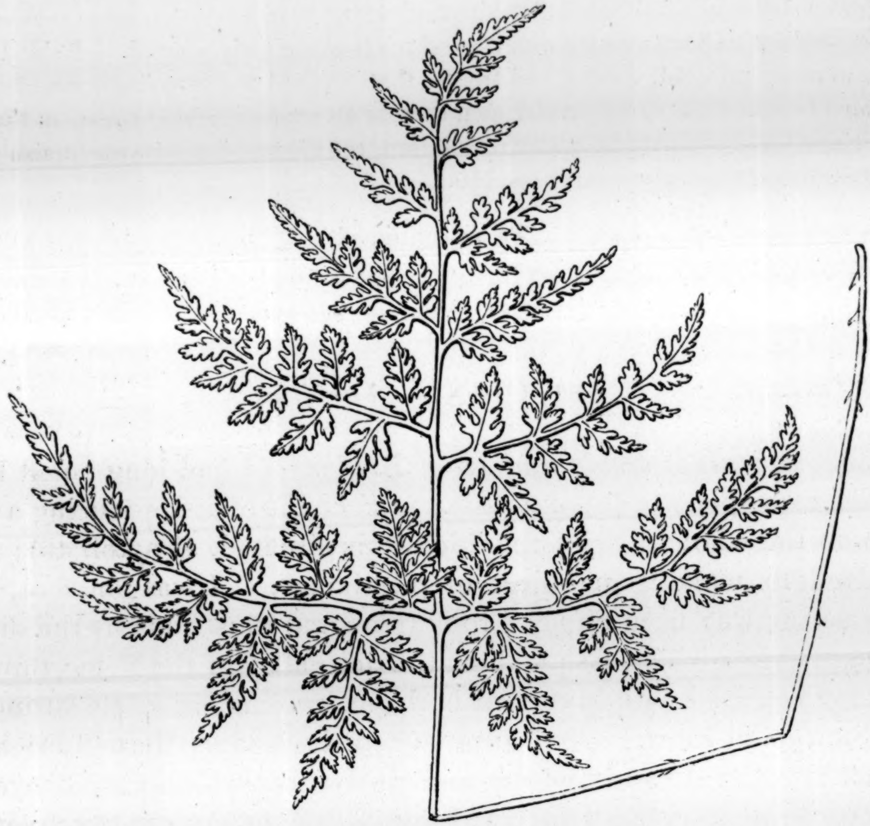
(To be continued).

ART. CLIX. — *Varieties.*

335. *Asplenium viride and Ham Bridge.* I had long noted Ham Bridge as a spot worthy of a visit, on account of its producing a fern alien to the whole district in which it is situated, (Phytol. 46); so I resolved to make it an object of pilgrimage. I was on foot, and wended my way from Sapey Brook (rendered illustrious by the discoveries of Jabez Allies, Esq.), along the rich valley of the Teme, through meadows clothed with luxuriant herbage, and among cattle fatting for the Smithfield show. As I approached the bridge, the red bricks of which it is built, and the dry and dusty road which passed over it, seemed in no degree to increase the chance of my success: yet on that bridge, facing the road-way and covered with dust, was the identical plant I sought — small indeed, but the species not to be mistaken. The parapet wall of the bridge is unusually high, but by some exertion I contrived to overcome this difficulty, and succeeded in obtaining piecemeal a good view over both the sides. The bridge appears to be of some antiquity, and is robed in many places with ample plants of Parietaria; in a few spots, Asplenium Trichomanes and A. Ruta-muraria have established themselves. I saw two or three small plants of Polypodium vulgare, and about as many of Asplenium viride. Having resolved not to exterminate the latter plant, and yet being desirous of convincing the most sceptical of my success, I took some little specimens which faced the roadway, leaving others to reward the labours of future pilgrims. — *Edward Newman; Hanover St., Peckham, June* 4, 1843.

336. *Cystopteris montana a British Fern.* This beautiful fern, which seems to occur in nearly all the alpine regions of Europe, was discovered by Mr. Wilson in Scotland in 1836. It has generally been

described as an Aspidium, but a glance at Schkuhr's figure of the fructification will show that Presl is right in referring it to the genus Cystopteris. A specimen, obligingly lent me by Mr. Wilson for my forthcoming reprint of 'British Ferns,' is figured above. — *Id.*



Cystopteris montana.

337. *Note on the preservation of Colour in specimens of Plants by immersing them in Boiling Water.* In the Report of Proceedings of the Botanical Society of Edinburgh (Phytol. 189), Mr. Evans is said to have preserved the colour of Lathræa squamaria, Asperula odorata, &c., by immersing them in *boiling water* for a short time. Mr. Sidebotham tells us (Id. 233) that he has tried the experiment, as described by Mr. Evans, and that with him hot water turned Lathræa squamaria blacker than when prepared in the usual way. Since Mr. Sidebotham expresses surprise at the experiment failing in his hands, it would be well to know if the waters at Melville Castle be the same as the water in the neighbourhood of Manchester; and if all water at a boiling heat would act in the same way on vegetables, so far as the colouring matter is concerned. For before we can come to any con-

clusion as to the benefit to be derived from the use of hot water in the preparation of botanical specimens, it would be well to know what kind of water we are making use of; for if Mr. Evans or Mr. Sidebotham were to try the experiment with water highly charged with *iron*, and again, with the same kind of plants, make use of water which is highly charged with *lime*, perhaps they would not see the same effect produced. Mr. Evans tells us that plants, after being immersed in boiling water, will dry in nearly one half the time required to dry them in the usual way. It is not stated if the specimens were subjected to the same kind of treatment after their immersion in boiling water, as when they are dried in the usual way. I have tried this experiment, that is, I have gathered specimens at the same time, and at the same place, and put part of them in boiling water for a few seconds, and then placed them in paper to dry. I then placed some in the same state in which I gathered them in the same kind of paper, and changed them at the same time, and in short gave them the same kind of treatment throughout. The result of this experiment was, that the plants which had been immersed in the boiling water, took three times the length of time to dry that those required which had not been in the boiling water. The plant which I tried the experiment on was Galeobdolon luteum. I now enclose three specimens of Asperula odorata: the one marked No. 1, I dried in the usual way—you will observe it is of a very dark colour: No. 2, I immersed in boiling water, and then dried it — that you will observe is much paler in colour than the plant is in a living state. No. 3, I put in a sheet of paper in the state in which I gathered it, and then placed it on the top of a steam-engine boiler. I let it remain there fifteen minutes, without changing the paper; in this short time I found it to be quite dry: this, you will observe, has by far the best colour of the three. I also enclose two specimens of Galeobdolon luteum: the one marked A, I immersed in boiling water for four seconds, and then dried it in the usual way; the other, marked B, I dried as the Asperula No. 3, only it took more time — thirty instead of fifteen minutes: the colour of both is very well preserved, but you will see that the one marked B is much the better of the two. A few days ago Dr. Harvey sent me a few specimens of Pinguicula grandiflora in a living state; and as I had not seen good specimens of that plant, I resolved to try what I could do in drying them. The first thing I did was to remove as much of the moisture as possible from the leaves. I then took one of the specimens, and placed it on a sheet of soft paper; then I carefully spread each flower, putting on them a piece of common blotting paper. I next folded up the specimen and placed it in other sheets of paper: all the specimens I put up in the same manner. I then exposed them to a gentle heat for thirty-six hours, and in that time I changed the papers three times; they were then taken out, and found to be quite dry, with the colour of both leaves and flowers most beautifully preserved. Much might be said on the subject of drying botanical specimens, but structure is what I always wish to see preserved; and as for colour, I would say that white paper is decidedly the worst that can be used, either for drying plants or keeping them in after they are dried, owing to the extensive use of chlorine in the manufacture of it. The enclosed specimen of Barbarea stricta was dried by artificial heat in four minutes, and its colour, you will observe, is not in the least injured. But as I am now taking up too much of your valuable space, I will conclude by saying that Mr. Shepherd, of Mill House, near Halifax, has a method of preserving plants, perhaps known only to himself, which is decidedly the best I have ever seen, so far as colour is concerned. The plan which he adopts is the fixing of their colours by some chemical process, either before or during the progress of drying; and I hope, before long, to prevail on him to give us the result of his experiments on this subject. The following plants, dried by Mr. Shepherd in the year 1838, are now enclosed; they will serve to show the merit of his plan in preserving the colours of plants:—Anagallis arvensis, Epilobium angustifolium, Listera ovata, Orchis latifolia, Sagittaria Sagittifolia and Myosotis sylvatica. — *Samuel Gibson; Hebden Bridge, June* 12, 1843.

[Of Mr. Gibson's specimens, those dried quickly, by means of artificial heat, are by far the most beautiful as regards colour and general appearance; the foliage of the Asperula No. 3 and of Barbarea stricta, has a perfectly natural hue, and their flowers appear to be not at all injured for examination. The specimens which had been immersed in hot water, have the least natural appearance of the whole number, and their flowers seem to be much injured. The specimens preserved by Mr. Shepherd, which Mr. Gibson has had the kindness to forward, have the colours of their flowers most beautifully preserved, but, with the exception of Sagittaria Sagittifolia, they do not look quite *natural*. This may perhaps arise, in some measure, from their being gummed down to the papers on which they are placed, whereby the petals may have been injured. The Sagittaria and Epilobium are decidedly the most beautiful of the whole, and Orchis latifolia the least so, its flowers being apparently much injured. In a late number of the 'Annals and Magazine of Natural History,' is an article on drying plants by means of paper saturated with a solution of chloride of lime; this being a deliquescent salt, the moisture of the plants is said to combine with it, and while the paper thus becomes wet, the plants themselves are dried in a short time. After all, the only secrets in the art of preserving specimens of plants for the herbarium, are, to use plenty of paper, and to dry the specimens as quickly as possible, either by means of artificial heat or otherwise, with the aplication of only just so much pressure as will

prevent their shrivelling. The best specimens of Ophrys apifera we have ever seen, were placed in a book, where they remained, in a warm room, unnoticed and forgotten, until chance again brought them to light, perfectly dry, and with the delicate pink hue of the perianth beautifully preserved.—*Ed.*]

338. *Note on the Formation of a Herbarium.* I observed your correspondent's enquiry, regarding the formation of a herbarium, on the wrapper of the March Phytologist, and Mr. King's mode in reply to it in the May number (Phytol. 585). The principal objection which is attached to the latter, in my opinion, is, that it does not present sufficient facilities for the progressive enlargement of the collection; for if it is not completed before the arrangement is commenced, blank pages of the "guard book" must be left in different places for such additions; and these cannot be calculated with any degree of certainty, provided the collector aims at anything like an extensive herbarium, besides having an unfinished appearance, and so many blank leaves being very inconvenient for reference. Mr. K.'s method is an excellent one when arranging a herbarium to which no additions are to be made, as in local herbaria, &c. The plan which I have adopted in arranging a rather extensive collection is the following. In all the best herbaria the specimens are *glued* to the paper; that this is far preferable to securing them by slips or threads, as practised by some, does not, I think, admit of a doubt; besides making the specimens more easy of reference, by facilitating their *turning over*, it is more expeditiously accomplished, and the constant breaking up of the slips is obviated; besides, there are many plants which cannot be well attached by that means, such as the leaves of Atropa Belladonna, the very compound ones of many Umbelliferæ, &c., where, if the slips are applied in sufficient number to fasten the specimen fairly to the paper, both the beauty and character of it are greatly diminished; then again the fruit of grasses, Carices, Compositæ, the petals of roses, and other species bearing fugacious flowers, are almost sure to be eventually lost. Under all these circumstances, I think it will be evident that fastening them in this manner is much superior to the other method—by slips of paper: thin *glue* should always be used; never gum or paste, as these are apt to turn mouldy, and also, after a time, to give way; it should be carefully applied with a pretty large and soft brush, and immediately committed to the press and paper used for drying plants, to remain there until thoroughly dry: the paper I use is large printing paper, thick and strong, about seventeen by nine and a half inches: I have some of the half sheets cut in two, and others in four; the folio size being intended for such plants as the Rumices, most ferns, grasses, Carices, &c.; the quarto for those

of the size of Sedum Telephium, Geraniums, &c.; and the octavo for all such small species as the Arenarias, Saxifrages and Sedums: in this way only one specimen is put upon each piece of paper. I have then a sheet of coarse stiff cartridge paper for each *species*, about a fourth of an inch larger every way than the other sheets: within this is laid the specimen or specimens glued to the other paper, with the station, date, or any other particulars, written on the latter; then on the lower left hand corner of the sheet I write the name of the species, and include all belonging to the same genus in another rather larger sheet, on which are written the name of the genus, class, order &c. The genera may be arranged according to the system adopted by the collector, and made up in tolerably small bundles, according to Mr. King's plan, but not *bound* at the back, but secured instead by strings, or straps and buckles, at each side: this mode of arranging a herbarium I find to be the most convenient for reference and enlargement, as well as the most economical, and the collection admits of being laid much smoother and flatter than if the leaves of paper were all of one size. It is desirable sometimes to have specimens *loose* for examination; indeed this is almost the only recommendation urged in favour of having them only partially fastened to the paper: in all *doubtful* or interesting plants it is very necessary to have at least the most essential parts loose; and a piece of paper, folded somewhat like a letter-envelope, and fastened by a wafer or a little gum to any part of the inside of the *species-sheet*, should always contain the flowers and fruit of the Umbelliferæ, Carices, Cruciferæ, &c. &c. — *Thomas Edmonston, jun.; Balta Sound, Shetland, June* 15, 1843.

339. *Note on drying Plants for the Herbarium.* As I am on the subject of herbaria, allow me a few words on the *drying* of plants; however simple the operation, it is one by no means well understood. I shall mention the way which in my hands seems to take up least time and trouble, and to dry plants more perfectly than any other I have made trial of. It appears to me that one cause of our seeing so many imperfectly and clumsily dried specimens, is from botanists not using enough paper between the layers of specimens, and from not applying sufficient pressure *at first*. I never employ less than twelve sheets of thick absorbent paper for any plants, twenty-four for strong or succulent species, and a board between every layer or two of specimens; the weight at first ought generally to be not less than two cwt. This pressure very speedily expels the moisture from the plant, without giving it time to shrivel up or change colour: the specimens lie in this way one, or perhaps two, days, and are then taken out and

all the paper changed, and half the weight or less applied for two or three days: no more changing is necessary, and in a week at most from the time of gathering the plants will be found to be perfectly dry. If any one would import the thick coarse paper used by German botanists for drying plants, and which we here never see unless coming with plants from that country, it would be conferring a great boon on British botanists, for the great superiority of the German specimens is evidently greatly owing to the superior paper for drying which they possess. I made a trial of this paper among some experiments instituted on the drying of plants last summer, and I found they dried in half the time required for those preserved with the common kind of paper. In conclusion, I would beg to caution inexperienced botanists against using hot water in the preparation of Sedums, Agraphis, and other succulent plants, or indeed for any specimens whatever, for, however well they may look, they are entirely useless as *specimens*, for the hot water utterly spoils the character of the plant, it being impossible to dissect and analyse them, and, unless pasting plants on the walls of rooms comes into fashion, I am quite at a loss to conceive the use of it: by proper care and attention to having the plants *quite dry* before committing them to press, specimens may be preserved fully as beautifully, and infinitely more usefully than by the *hot-water cure.—Id.*

340. *Note on Cerastium latifolium.* I am sorry to find that Mr. Watson (Phytol. 586) does not agree with my views of the Cerastium described by me, (Id. 495). I am also sorry to find Mr. W. confining his remarks to the least important point characterized, viz. the form of the leaves, and the sum of the proof seems to be brought from a garden specimen: all the characters derived from the length of the peduncles, the bracteæ, sepals, capsule, pubescence, &c., are dismissed without comment; Mr. W. merely saying "that the other characters *appear* as little constant as those taken from the leaves." Now having examined such a multitude of specimens from different stations, collected at different times, I feel convinced I am correct in saying that the characters I have given are really constant: they are such as are employed, without a doubt, in distinguishing other species of Cerastium, and better will rarely be got among the Caryophylleæ. The main point urged by Mr. W. is, that cultivated specimens of the Scotch "C. alpinum and C. latifolium bear leaves equally short, broad and obtuse," as those I have figured belonging to my C. latifolium. Now every botanist knows that plants removed from their native mountains to a garden, can never be depended on for retaining their

characteristics. I have seen in the Edinburgh Botanic Garden, and elsewhere, plants of Cerastium alpinum raised from roots from Clova, in which the leaves were *linear-lanceolate,* and hardly to be distinguished from those of some narrow varieties of C. triviale or atrovirens; yet no one would for a moment dream of considering this a normal form. I cannot help thinking that Mr. Watson is misled, partly by the garden plants he alludes to, and partly by seeing some variations in the form of the leaves of the Scotch plants: thus he says that in "a specimen of C. latifolium (of British authors), gathered on Ben Lawers, there are lanceolate-ovate or *almost* orbicular leaves from the same root." I have seen considerable difference in the breadth of leaves of C. alpinum, but the nearest approximation to "orbicular" I have ever met with was somewhat broadly-ovate, and the character "ovate or ovato-lanceolate" includes all the varieties I have seen in wild specimens. My C. latifolium has come up in the old station, within a few hundred yards of my residence, by thousands, this year; and in examining numerous individuals some days ago, for the purpose of making a drawing and description of it for the 'Supplement to English Botany,' I am more than ever struck with the great difference in colour, habit, &c., as well as more important points and differences. I shall be happy to supply any of your correspondents with specimens of this interesting plant.—*Id.*

341. *Unusual habitat of Limosella aquatica.* In the few localities in which I had gathered the Limosella previously to the present month, the plant was growing either wholly in water, or on the sides of pools and ditches which had recently been under water. Yesterday I found about a dozen specimens of this plant, just coming into flower, on the surface of my kitchen garden, intermingled with young plants of Veronica Buxbaumii; the seeds of the latter having been sown by myself, on the same spot, in the month of May, at which time no plants of the Limosella were observed, nor had I ever before seen this species in my garden. The ground has been used as a kitchen garden for the last eight years, and was several years in cultivation as arable land before its conversion into a garden. It was originally marshy, but was drained and enclosed many years ago, and is now so little disposed to retain its former character, that my gardener usually finds it necessary to water his crops copiously in spring and early summer. In the present year, however, abundant and almost daily rains through a part of May and June, kept the ground more humid than was desired; and apparently the seeds of the Limosella had germinated during those weeks of wet weather. How

these seeds reached the spot on which the plants were found I am quite unable to say, but would deem it not improbable that they had been carried to the garden in water from a neighbouring pond, in which I have never seen the Limosella, but to which its seeds may have been borne by a flood-stream two years ago, from a more distant pond, within which the plant has been repeatedly observed. The alternative conjecture, that the seeds had remained dormant in the soil of the garden for twenty or thirty years, seems less likely to be the true explanation. But by whatever way the seeds contrived to be on the spot in question, the fact of the Limosella being found as a weed on cultivated ground is worthy of record, as a marked instance of change from the ordinary habitat of an "aquatic" plant.—*Hewett C. Watson; Thames Ditton, June* 30, 1843.

342. *Note on Symphytum asperrimum.* One fine evening last month during a stroll along the banks of the river Tame, in Cheshire, I fell in with a quantity of Symphytum asperrimum, apparently wild, growing in a meadow. There is no garden in the vicinity, from which it could have escaped, indeed I have never seen it cultivated in the gardens about here, though I am aware it is occasionally to be met with. Perhaps some of your correspondents may know something about the plant, and on whose authority it was placed in the Supplement to Francis's Catalogue.—*J. Sidebotham; Manchester, July* 7, 1843.

343. *New habitat for Lepidium Draba.* This plant is of such rare occurrence, and so local, as very seldom to be brought within the reach of the collecting botanist; indeed, unless recent research has multiplied localities, I know but of two spots where the plant may be certainly found in Britain. Hence I was much pleased at discovering a new colony of the Lepidium Draba, a few weeks since, and the announcement may perhaps gratify other botanists. What is most remarkable in the matter is, that I feel certain the plant was never there until the present season, as I have doubtless passed the spot it now occupies almost a thousand and one times within the last few years, although this season thirty or forty plants have suddenly sprung up in one particular place. I am almost afraid to indicate the exact locality, lest a file of men from the Worcestershire Natural-History Society should reduce the whole colony to mummies; but suffice it to say that it grows on the glacis of the embankment of the new road made about seven years since, to the iron bridge over the Teme at Powick, and not near any habitation or ploughed field. It also grows mixed up with the quick of the hedge planted since the road was formed, in company with a rank growth of Malva sylvestris, Sisym-

brium officinale, &c., and therefore I think the agency of Nature *only* has located the plant there, however that may have been exercised. I am the more induced to mention this, as I did not discover this Lepidium in time to include it in my Malvern Plants,* which I should otherwise have done, since its habitat is on the *western* side of the Teme, within a little more than five miles of Great Malvern. As I have often poured forth maledictions on road-surveyors for eradicating plants, it is but fair to set down this occurrence as *per Contra, Cr.* in their favour; and I dare say the embankments of railways will in time produce some *good things.* I beg leave to say that I have in fairness left between twenty and thirty plants of the Lepidium, if not more, to perfect their seeds, so that if the locality should become unproductive in future, it will not be my fault.—*Edwin Lees; Church Hill Cottage, Powick, near Worcester, July* 12, 1843.

[The parallel case of Lavatera Olbia springing up on the embankment of a new road in Epping Forest, has been recorded by Mr. H. Doubleday, (Phytol. 265); there is, however, this difference, that we are not aware of any other British station for the Lavatera being on record, while Lepidium Draba has previously occurred in Glamorganshire (Phytol. 106), Kent and Cheshire.—*Ed.*]

344. *Enquiry respecting Equisetum arvense and E. Drummondii.* Perhaps you will allow me, through the medium of your periodical, to enquire of your readers whether Equisetum arvense or E. Drummondii be the more glaucous of the two; as I never had the pleasure of seeing E. Drummondii in a living state. My reason for making this enquiry is, that Sir W. J. Hooker tells us (in 'British Flora,' 1st and 5th editions) that *Drummondii* "is greener and less glaucous" [than *arvense*]. Francis, speaking of E. Drummondii, says, "this plant differs from Equisetum arvense in its more glaucous, greener colour." I hope to be excused for making this enquiry, for surely, such books as those I have quoted were written for the purpose of being understood. I think it can be no printer's error in the 'British Flora,' or it would have been corrected before it had got through five editions. —*Samuel Gibson: Hebden Bridge, June* 13, 1843.

345. *Enquiry respecting Carex distans.* While on the subject of enquiries, perhaps I might be allowed to ask, what is to be understood by "the barren stalks," in the description of Carex distans in 'British Flora,' 4th and 5th editions? As this is a new term among the Carices, I hope to be excused for making the enquiry. I should have taken this for an error of the press, had I not found the same

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* Plants of the Malvern Hills. By Edwin Lees, F.L.S., &c. Tilt & Bogue, Fleet Street: Lamb, Malvern. A notice of this book in our next.

words used by two different authors; first by Sir W. J. Hooker, in the 4th edition of his 'British Flora,' and then by Leighton in his 'Flora of Shropshire,' and again by Hooker, in the 5th edition of his Flora. —*Id.*

346. *Notes on Epipactis latifolia, &c.* I am sorry that I omitted, in the last Phytologist, to call the attention of botanists to Epipactis latifolia, and its closely allied species, or varieties, or whatever they may be; but it is not now too late to institute an enquiry, and I earnestly hope that all botanists who have an opportunity of studying the plants *in a living state*, will avail themselves of that opportunity, and favour the public with the result of their investigations. Those who have seen an extensive series of specimens of the plant known as Epipactis latifolia, are well aware of the great variety of form and habit which it assumes, even without including the forms of the less variable but still inconstant E. purpurata: but if these are combined with the plant usually known as E. latifolia and its acknowledged varieties, the transition from the one extreme to the other becomes more gradual, and the difficulty of distinguishing between the intermediate forms is consequently greatly increased. Ray seems to have doubted if there might not be more than one species confounded under his Helleborine latifolia montana, since he remarks that he has observed this plant to bear green flowers, but that Dr. Plot and the Oxford botanists find one, the flowers of which are of a still deeper purple than those of Helleborine flore atro-rubente (Smith's Epipactis latifolia β.), adding, "whence it is either a striking variety, differing in the colour of the flower, or the two plants are distinct species." Smith also says that "the reputed varieties of E. latifolia perhaps require more scientific examination than they have hitherto received." In Leighton's 'Flora of Shropshire,' under Epipactis latifolia, Mr. Babington has given the characters of two plants:—1. E. latifolia, *All.* and *Eng. Bot.* 269, the normal E. latifolia, with very broad leaves, and green flowers with a purple lip; and, 2. E. viridiflora, *Reich.*, with only the lowest leaves broad, and the flowers "green, tinged with purple." The latter plant is referred by Fries, as a variety, to his E. media; with the remark that if attention be paid only to the colour of the flowers, it must necessarily be confounded with E. latifolia, from which it may always be known by being more slender in all its parts; the leaves are also gradually narrowed to the apex, not abruptly acuminate, as in E. latifolia. Mr. Babington has studied the plants referrible to E. latifolia, with great care, but without being able to satisfy himself as to their identity or distinctness. In his 'Manual,' under E. latifolia, *All.*, he observes that

"there are four very different plants included under this species, one or more of which is probably distinct;" and gives the following characters:—

"a. *E. latifolia;* leaves broadly ovate longer than the internodes, upper l. ovate-oblong, lower bracts longer than the flowers, *terminal division of the lip roundish-cordate obtuse with a small recurved point* shorter than the broadly ovate sepals and petals 'its keel not crenate above.'—*E. B.* 269.— Leaves ovate, very broad, the very uppermost sometimes lanceolate-attenuated; lowermost leafless sheaths close. Lower bracts foliaceous lanceolate attenuated. Flowers green with the lip purple, sometimes all purple. Peduncle shorter than the downy germen. Lobe of the lip broader than long, crenate.

"b. *E. media,* (Fries); l. ovate-oblong the upper ones lanceolate acute, lower bracts longer than the fl. and fr., *terminal division of the lip triangular-cordate acute as long as the lanceolate sep. and pet.* its keel 'crenate above.'—*R. Icon.* f. 1141, 1142.—Narrower and more elongate in all its parts than *E. latifolia,* only the very lowest l. ovate, intermediate lanceolate, upper l. lanceolate attenuated and merging gradually into the linear-lanceolate bracts; sheaths funnel-shaped. Fl. "green tinged with purple." Peduncle shorter than the downy germen. Lobe of the lip longer than broad crenate.

"c. *E. purpurata,* (Sm.); l. ovate-lanceolate the upper ones narrower, lower bracts longer than the fl. and fr., *terminal division of the lip triangular-cordate acute shorter than the ovate-lanceolate sep. and pet.* its keel plicate-crenate above.—*E. B. S.* 2775.—L. becoming gradually narrower as they ascend the st. and merging insensibly into the linear-lanceolate bracts. Fl. "yellow-green tinged with pink." St. and l. much tinged with purple. Peduncle shorter than the downy germen. Lobe of the lip longer than broad, entire, exactly like that of *E. media,* but with a more attenuated point.

"d. *E. ovalis;* l. ovate-oblong acute the upper ones lanceolate, 1 or 2 lowest bracts longer than than the fl. but shorter than the fr., *terminal division of the lip transversely oval acute* as long as the ovate acute sep. and pet. its keel plicate-crenate above.—Helleborine &c. No. 2. *Ray,* 383?—L. small; sheaths funnel-shaped (as far as I can judge from dry specimens). Bracts all much smaller than even the uppermost leaf. Fl. blackish-red, peduncle shorter than the downy germen. Lobe of the lower lip exactly transversely oval, crenate, with a small acute point and an elevated folded and crenate triangular keel above. St. 6—18 inches high."—*Bab. Man. Brit. Bot.* 295.

Of the above four forms, a. appears to be the most common; of this I possess specimens from Reigate Hill, Surrey; East Marden, Sussex; and from near Geneva: and believe the same form to occur very frequently in some parts of Epping Forest and on the weald clay of Sussex. I have a single specimen of what Mr. Babington considers to be the second form, b. from near Chipstead, Surrey. The third, c. is not unfrequent in the woods on the chalk hills of Surrey; I possess it from near Reigate, and have seen it in the copses below Crawley, Sussex; these are identical with Mr. Forbes's Woburn plants, as figured in Eng. Bot. Suppl., although I have some doubt of their being the same as Sir J. E. Smith's specimen, described as his E. purpurata. Of d. I know nothing, except from a specimen from Giggleswick, near Settle, kindly presented by Mr. Babington, and another from Gordale, near Settle, labelled "Epipactis latifolia, var. β." It may here be remarked that the plants must be studied in a *recent state.* Mr. Babington observes, "The points that require attention in these plants are *the shape of the terminal lobe of the lip*, with the character of its upper surface,—*shape of the petals and sepals*, and the character and form of the sheaths on the stem;" these points cannot be properly investigated in dried specimens.—*Geo. Luxford; 65, Ratcliff Highway, July* 22, 1843.

347. *Note on the Gravesend locality of Pæonia corallina.* We are so accustomed to consider that Master Gerarde was actuated by entire good faith in making known his discoveries, that it is perhaps hardly fair to publish anything in disparagement of his fair fame; wherefore in mentioning the following naughty trick, with the doing of which he is charged by his emaculator, Johnson, it is more for the purpose of soliciting information as to the present state of the Gravesend locality of his "Male Peionie," than for any other purpose: at all events the passages are amusing. Gerarde says—"The Male Peionie groweth wild vpon a conny berry in Betsome, being in the parish of Southfleet in Kent, two miles from Grauesend, and in the ground sometimes belonging to a farmer there called *Iohn Bradley.*" To this Johnson adds,—"‡ I haue beene told that our author himselfe planted that Peionie there, and afterwards seemed to finde it there by accident; and I doe beleeue it was so, because none before or since haue euer seene or hard of it growing wilde in any part of this kingdome. ‡"—*Ger. Em.* 1983. The Steep Holmes station was not known then.—*Id.*

348. *Mr. Murcott's Plan for drying Plants.* The following is the mode of drying plants by means of a deliquescent salt, before alluded to, (Phytol. 674).

"The plants to be dried are placed between sheets of paper containing chloride of calcium, contact with the salt being prevented by an intervening cushion on one side, and a layer of fine calico on the other. Two thin boards support the apparatus, and are held together by a couple of buckled tapes; the whole is enveloped in oil cloth to exclude atmospheric moisture. The packet need not be opened till the plants are dry enough to be removed, or fresh plants require to be introduced. The time and trouble of frequently removing drying plants into fresh papers, as in the ordinary method, are both saved; for though the packet be full of plants, it need not be opened even for several months. Plants in general dry much faster than in blotting paper, and their colours are much more frequently preserved: the use of the pad prevents injury to the soft parts of plants, and hinders their corollas from shrivelling up in drying, without applying so much pressure as would unfit any part for subsequent examination.

"Brown paper, so thick as to prevent the transmission of light, with a smooth surface, and not much sized, is better fitted to hold the salt than blotting-paper, which it greatly surpasses in durability and tenacity in a damp state. The paper is impregnated with the salt by dipping it (a sheet at a time) in a solution formed by dissolving 13½ oz. of the crystallized chloride of calcium in one (imperial) pint of water. Where the chloride is expensive, or difficult to be procured, it may be prepared by saturating hydrochloric acid with fragments of marble, or even with common chalk: the acid may be of commercial strength or slightly diluted with water; but the vessel containing it should be capable of holding several times the quantity, on account of ebullition. After saturation the liquid should be filtered, and diluted with water till its specific gravity falls to 1·188; this may be ascertained most readily by a glass bead of that number. The sheets as they are dipped (a large tea-tray is very convenient to hold the liquid) should be carefully laid one upon another, and at length so much liquid pressed out that they will not drip when held before a fire to dry. I dry them before a fire, but a friend suggests that much time and trouble would be saved by drying them in a baker's oven. A solution of this strength will communicate as much of the salt as the paper can retain without showing an exudation on its surface when applied to use and its complement of moisture absorbed, while the excessive brittleness occasioned, if the liquid be much more concentrated, soon splits the back of every sheet; and the drops of liquid that appear as the paper grows very damp might deter a beginner from following the method.

"In applying the paper to use, I place about three sheets between every lot of plants: the plants do not touch the paper, but lie on a cushion of cotton wool, and are covered with a piece of 'glazed lining' calico, or similar material; or they are placed between two pieces of flannel; of course the same surface of the cotton or flannel should always be applied to the paper, to prevent communication of the salt to the plants. I have prepared some sheets of paper on one side only, but have not yet given them a trial. The pads do not much affect the quick drying, but they preserve soft parts from injury, and render a very slight pressure sufficient. When I wish to preserve the corolla of a plant in the best possible manner, I place under and above it a little finely opened cotton wool. When very watery plants are to be dried, such as *Hottonia palustris*, I would place an extra cushion of cotton wool over them. Plants seem to dry best at a temperature of about 100° Fah. When the papers have taken up as much moisture as they can absorb, they may be re-dried before a fire, if the method suggested by a friend (drying at a baker's oven) should not be accessible. *Orchidaceæ* and *Scrophulariaceæ* are bad driers, even with the aid of chloride of calcium; but I find that *Listera ovata*, and probably some others, may have their colour perfectly preserved if immersed for a few seconds in a nearly boiling but very weak solution of carbonate of soda, then wiped and placed between the papers. This remark may perhaps induce some one with more leisure than myself to experiment on various ways of drying plants of these natural orders.

"The disadvantages of the method are, in my opinion, inconsiderable when compared with the saving of time and trouble, and the much better preservation of the specimens. Brown paper is not expensive. Crystals of chloride of calcium may be bought of the Liverpool Apothecaries' Company, and perhaps elsewhere, at 5d. per lb., or if prepared at home, the expense will be about the same. The cotton-wool cushions cost 1d. or 1½d. each; flannel is more durable, but more expensive. The cushions render the apparatus bulky, but this is only an inconvenience in travelling, and then the far greater inconvenience of drying papers at inns in the summer months is experienced about once in three weeks instead of once a day, or every other day. Such at least is the result of my experience; I have employed the salt in the manner described for two years and part of a third, for I commenced with it in 1840. The great dryness and consequent brittleness of the plants unfit them for the immediate examination of concealed parts, but exposure to a moist air for a short time would diminish their fragility in a sufficient degree." — *Ann. and Mag. Nat. Hist.* xi. 33.

The author recommends the use of the same salt in the cabinet containing the herbarium, in order that the collection may be preserved in a perfectly dry state.—*Ed.*

349. *Mr. E. Quekett's Observations on the Ergot of Grasses.* We gave the title of this paper in our report of the Proceedings of the Linnean Society, (Phytol. 559); the following is an extract from the recently published number of the Society's 'Proceedings.'

"In March, 1840, twelve healthy grains of rye, of wheat and of barley, were placed in a shallow glass vessel containing a sufficient quantity of distilled water to moisten them, and covered with a glass shade. When germination commenced, an ergot of wheat of the preceding year was immersed in the water, the sporidia on its surface were detached, and the ergot itself was then removed. The same experiment was performed with sporidia obtained from an ergot of *Elymus sabulosus*. Several days afterwards, when the leaves had attained a length of three or four inches, the young plants were conveyed into the country and planted side by side in a garden. At the period of harvest there remained alive only four plants of the rye (one of which had been infected from the ergot of *Elymus*, and the remaining three from that of wheat), three of the barley, and four of the wheat. Of the rye scarcely a single ear produced healthy grains, the paleæ being generally quite empty; but nine of the ears contained ergots, some furnishing only a single specimen, and others as many as six. The ears of the barley were filled with healthy grains, and only one apparently diseased grain was detected; while in the wheat the ears were full and without disease.

"As in these experiments no grains from the same sample were sown which had not been subjected to the influence of the sporidia of the fungus, Mr. Quekett made in the following autumn another experiment with the view of supplying this deficiency. Twelve grains of rye, of wheat and of barley, were again made to germinate under similar circumstances to the last, and the sporidia obtained from the surface of one of the ergots of rye produced in the first experiment were diffused in the water in which they grew. These were planted in October on the same estate, but not within half a mile of the former spot; and twelve healthy grains of each kind, which had been carefully kept apart from the others, were planted in the same locality. Very few of the plants arrived at maturity, and in August last there remained of the infected plants only two of rye, two of wheat, and one of barley; and of the uninfected plants one of each kind. On each of the plants of rye which had been subjected to the influence of the sporidia an ergot was discovered, and the ears, as before, were almost entirely devoid of healthy grains; while the plants of wheat and barley subjected to the same influence produced perfect ears and healthy grains. The three plants of rye, wheat and barley, planted at the same time, without exposure to the sporidia of the fungus, presented no unhealthy appearance.

"Mr. Quekett argues that all the grains of rye subjected during germination to the influence of the sporidia of the fungus, in both sets of experiments, having produced plants infected with ergot, while the plants derived from grains not so subjected escaped disease, a convincing proof is afforded that their infection could not have been the effect of chance, but must have resulted from the artificial introduction of the sporidia; and that the infection of the rye only, while the wheat and barley escaped, is to be attributed to the greater susceptibility of the rye to infection, as proved by the much greater frequency of the production of ergots in that species of grain."—*Ed.*

ART. CLX.—*Proceedings of Societies.*

LINNEAN SOCIETY OF LONDON.

May 2, 1843.—The Lord Bishop of Norwich, President, in the chair.

Mr. James Backhouse presented specimens of fruits and seeds from New South Wales, Van Dieman's Land and Tahiti. Specimens of two rare species of Parmelia from the New Forest, Hants, were presented by Capt. T. Jones, M.P., F.L.S.

M. Achille Richard and M. Joachim Frederic Schouw, were elected foreign members of the Society.

John Salt, Esq., M.D., was elected a fellow, and Mr. Thomas Sansom an Associate of the Society.

The President then announced that in consequence of the lamented decease of His Royal Highness the Duke of Sussex, the meeting would adjourn.

Anniversary, May 24.—The Lord Bishop of Norwich, President, in the chair.

The Auditors' Report of the Society's income and expenditure during the past year was read, showing a balance in the hands of the Treasurer of £189. 7*s.* 4*d.*

The following members were reported to have died during the past year: — The Rev. Jas. Dalton, M.A., John Latham, Esq., M.D., James Lynn, Esq., M.D., J. Gage Rokewood, Esq., and the Rev. Thos. Newton, Fellows: Mr. Andrew Mathews and Mr. Daniel Cooper, Associates. Since the last anniversary there had been elected 18 Fellows, 2 Foreign Members and 6 Associates.

The President having proposed that the King of Saxony should be elected as an Honorary Member of the Society, the question was put to the vote, and His Majesty unanimously elected.

Edward Forster, Esq. having taken the chair, the members present proceeded to ballot for the Council and Officers for the ensuing year. Mr. Suttor, Dr. Lankester and Dr. M'Intyre were appointed scrutineers, when the following gentlemen were declared to be duly elected Members of the Council: — Arthur Aikin, Esq., the Rev. F. W. Hope, W. H. Lloyd, Esq., Richard Owen, Esq., and Wm. Yarrell, Esq., in place of Thos. Bell, Esq., Lord Beverley, R. I. Murchison, Esq., John Parkinson, Esq. and J. O. Westwood, Esq., who retire from the Council.

The ballot for officers having closed, The Lord Bishop of Norwich, Edward Forster, Esq., J. J. Bennett, Esq., and Richard Taylor, Esq., were severally declared to be re-elected President, Treasurer, Secretary and Under-secretary of the Society.

June 6.—Edward Forster, Esq., in the chair.

Thos. Turner, Esq. and James Tulloch, Esq. were elected Fellows of the Society.

Read, a 'Description of Peltophyllum, a new Genus of Plants allied to Triuris, *Miers;* with remarks on their affinities:' by George Gardener, Esq., F.L.S.

June 20.—Edward Forster, Esq., Vice-President, in the chair.

The Secretary stated that he had received instructions from the President to nominate Robert Brown, Esq., Edward Forster, Esq., Sir Wm. Jackson Hooker, and Thos. Horsfield, Esq., M.D., to be Vice-Presidents for the ensuing year.

Read, 'Notes on the Forest Trees of Australia,' by George Suttor, Esq., F.L.S.

The Society then adjourned until Tuesday, November 7.

BOTANICAL SOCIETY OF EDINBURGH.

This Society held its last meeting for the season, on Thursday, July 13, at the Botanic Garden: the President, Dr. Neill, in the chair.

After a delightful walk through the gardens, during which Prof. Graham pointed out the objects most worthy of notice, the meeting assembled in the class-room for business. Donations to the library were presented from Edwin Lees, Esq., Worcester, and Professor Forbes, of London: and several valuable parcels of British and foreign plants were announced.

The papers read, which were mostly of a technical character, were: —

1. On the genera Gomphonema and Meridion. By Mr. John Ralfs, Penzance.
2. On four new species of British Jungermanniæ. By Thomas Taylor, M.D., Dunkerron.
3. On a species of Fungus found imbedded in peat, near Stirling. Communicated by Mr. Peter Mackenzie, West Plean.

The attention of botanists has recently been directed to the importance of studying the vegetable remains imbedded in peat-mosses, as calculated to throw light on the early vegetation of the country, and the successive changes it has undergone. For this object, communications like that from Mr. Mackenzie are much to be desired.

A letter was also read from Dr. Joseph Dickson, St. Helier's, Jersey, mentioning some interesting additions to the Flora of that island, which he had lately discovered; and remarking, that he felt convinced it contains many other species still unknown to botanists.

BOTANICAL SOCIETY OF LONDON.

July 7, 1843.—J. E. Gray, Esq., F.R.S., &c., President, in the chair. Donations to the Library were announced from the American Philosophical Society, the Academy of Natural Sciences, Philadelphia, the Dublin Natural-History Society, the Shropshire and North Wales Natural-History Society, Dr. Dickie, Dr. Gavin Watson, Professor Forbes, Professor Meneghini, M. Schrenck and Mr. Chatterley.

Dr. Gavin Watson and Mr. Robert Kilvington of Philadelphia, presented a very large collection of North-American plants. The President presented some plants from Singapore, and British plants had been received from Dr. Ayres and Miss Beever.

Mr. T. Twining, jun., exhibited a large collection of living cultivated plants from Twickenham.

Read, 'Observations on Dicranum Dillenii, *Taylor*, *MS.*,' by Dr. Thomas Taylor.

As Dillenius is the first author who directed the attention of botanists, seventy-five years ago, by a separate figure, to the present moss, his name has been ascribed to it; and yet it is evident that Dillenius, as well as all subsequent muscologists, have confounded it with Dicranum scoparium, *Linn.* Nor is this without excuse, when we consider the strong resemblance in the habit of both, their being nearly equal in size, their very general occurrence in Europe, as well as the northern parts of America, and particularly their frequently growing together in the same woods, or on the same banks, in more open and mountainous situations. Besides, the present plant varies considerably in appearance, so that the one state, well figured in 'English Botany,' t. 354, as Dicranum scoparium, would scarcely be supposed to belong to the same species as another state, equally well represented by Schwaegrichen in his Supplement, t. 42, under the same name. It is the wide limits within which its aspect changes that probably weighed with the editors of 'Muscologia Britannica,' to give both species, well-represented, as varieties only of Dicranum scoparium.

Submitted however to a rigid scrutiny, Dr. T. apprehended that the following distinctive marks would be found to be constant, and if so, they would appear to be sufficiently numerous and sufficiently grave to establish the present species.

1. Dicranum Dillenii, though frequently differing in size, is usually the smaller moss.
2. Its leaves are not constantly, and but slightly, turned to one side, while in Dicranum scoparium they are more loosely set, and uniformly falcato-secund.
3. In the present species the pedicels are solitary, in the other aggregated within the same perichætium.
4. In the former the pedicels are opaque, even immediately below the capsule, at the period of full maturity; they are also reddish below and brownish above: while in the latter, even when full grown, they are somewhat pellucid, and of a pale straw colour.
5. In the former, the capsule is erect below and slightly curved above, is nearly equal, has no projecting struma, yet with an apophysis, pale brown when ripe: in the latter, the capsule is curved, even long before the fall of the calyptra, is very unequal, has a projecting struma, and is green when just ripe.
6. In the former, the operculum is gradually acuminated, and falls after the calyptra; while in the latter, the operculum, with a broad base, is suddenly acuminated, and usually falls in and with the calyptra.
7. In Dicranum Dillenii the teeth of the peristome are narrower and more opaque.
8. The stem is often interruptedly leafy.
9. The leaves are shorter, and have their points less curved.
10. The parts of fructification are larger in proportion to the size of the plant.

In the Museum of the Society occurs a Dicranum from Newfoundland, from the late Mr. Lambert's collection, which, being barren, and consequently not admitting of a comparison of the parts of fructification, Dr. T. would not venture to separate from Dicranum Dillenii; and yet its densely aggregated and shorter stems, its shining lustre, and its less patent leaves, would demand the greatest attention, and would indicate it as at least a very remarkable variety; but when it is considered that its leaves are shorter, wider in the lower half, with their points more canaliculate, and the nerve serrated at the back, it must be confessed that its claims for separation are very strong. — *G. E. D.*